

NEW OR INSUFFICIENTLY-KNOWN CRANE-
FLIES FROM THE NEARCTIC REGION
(DIPTERA, TIPULIDAE).
PART XII.¹

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The preceding part under this general series of papers was published in 1949 (*Bull. Brooklyn Ent. Soc.*, 44: 152-157). At this time I am describing four novelties from the mountains of southeastern Arizona, collected by my friends Messrs. Owen Bryant, William Nutting and Floyd Werner, to whom I am greatly indebted for the privilege of retaining the types in my personal collection of these flies.

Tipula (*Bellardina*) *catalinensis* n. sp.

Mesonotal praescutum buffy gray, with four brown stripes, the median interspace more reddened, the lateral ones clearer gray; scutellum brownish yellow, with a narrow brown central line; antenna with scape and pedicel yellow, flagellum dark brown; femora obscure yellow, the tips narrowly brownish black; wings marbled, brownish yellow, variegated with cream-yellow and sparse darker brown areas; abdominal tergites yellow, vaguely trivittate with pale brown, the outer segments brownish black; male hypopygium with the caudal border of the tergite very shallowly emarginate, with a further more ventral median lobe; ninth sternite with a small lyriform median appendage; outer dististyle a large flattened curved blade; inner dististyle small but complex, the beak slender.

Male: Length about 18 mm.; wing 19 mm.; antenna about 3.5 mm.

Frontal prolongation of head obscure brownish yellow, slightly pruinose dorsally; nasus elongate; palpi brown, the incisures restrictedly pale. Antennae relatively short; scape brownish yellow, corrugated; pedicel clearer yellow, flagellum dark brown; flagellar segments subcylindrical or with the basal enlargements feebly indicated; verticils longer than the segments. Head above brownish gray, the sides of the occipital region more yellowed, the vertex with a brown central stripe; vertical tubercle very low.

Pronotal scutum weakly infuscated medially, more yellowed on

¹ Contribution from the Department of Entomology, University of Massachusetts.

sides; scutellum and pretergites clearer yellow. Mesonotal praescutum buffy gray with four brown stripes, the median interspace more reddened, slightly broader at and beyond midlength; lateral interspaces clearer gray, the reddish lateral stripes narrowly bordered internally by brown; scutal lobes dark gray, the central area obscure yellow; scutellum brownish yellow, with a narrow brown central line, parascutella brownish testaceous; postnotum gray pruinose, the cephalic half less so. Pleura and pleurotergite pale brown, sparsely pruinose, the propleura and dorsal mesopleura slightly darker to form a weak stripe, the ventral sternopleurite and meron similarly darkened; dorsopleural membrane broadly yellow. Halteres with stem yellow, knobs broken. Legs with the coxae yellow, sparsely pruinose, the bases of the fore pair vaguely darkened; trochanters yellow; femora obscure yellow, the tips narrowly brownish black; tibiae yellowish brown to brown, the tips narrowly more infuscated; tarsi brownish black; claws (male) weakly toothed. Wings marbled, brownish yellow variegated with cream-yellow and sparse darker brown areas; prearcular and costal fields a trifle more yellowed; the darkest markings include the stigma, origin of *Rs*, anterior cord and a spot before midlength of cell *Cu*, the last being preceded and followed by more whitish markings; tips of cells *R*₅ to *M*₃, inclusive, with pale spots; cell *1st A* with two larger similar areas; irregular, more cream-yellow markings before and beyond stigma and in cells *R* and *M* at about the level of the origin of *Rs*; veins brown. Venation: *R*₁₊₂ entire; *Rs* about one-half longer than *m-cu*; petiole of cell *M*₁ and *m* subequal.

Abdominal tergites yellow, vaguely trivittate with pale brown, the central stripe broader and more diffuse, the narrow sublateral stripes barely interrupted at the sutures; lateral tergal borders narrowly light gray; sternites obscure yellow, darkened on sides; outer segments brownish black. Male hypopygium relatively large; ninth tergite separated from the sternite by a virtually entire suture; basistyle and ninth sternite entirely fused. Ninth tergite large, when viewed from above appearing narrowed outwardly, the apex with a very shallow emargination; more ventrally with a small median lobe that is densely provided with blackened spinules, the lobe subtended on either side by a small pale blade. Ninth sternite with a small lyriform median appendage, the arms slender, glabrous. Outer dististyle large, appearing as a flattened gently curved blade, at base on either side with a pale membranous lobe that bears a group of setae; outer end of style more expanded, on the concave lower surface with numerous setae and a small lobule before the

obliquely truncated apex. Inner dististyle small, complex; beak small, slender, the corresponding posterior end of style a trifle larger and stouter but having the same general shape. Eighth sternite unarmed.

Habitat: Arizona (Pima County).

Holotype: ♂, Santa Catalina Mountains, June 26, 1935 (Owen Bryant).

This interesting crane-fly superficially resembles *Tipula* (*Bellar-dina*) *gothicana* Alexander and some allied forms, differing from all particularly in the structure of the male hypopygium.

Tipula (*Eumicrotipula*) *werner* n. sp.

Belongs to the *glaphyoptera* group; general coloration gray, the praescutum with three darker brown stripes, their anterior ends with four polished black areas, the intermediate pair more extensive; antennal flagellum bicolored; femora obscure yellow, the tips blackened, preceded by a clearer yellow ring; wings whitish subhyaline, patterned with dark and paler brown; R_{1+2} atrophied; abdomen yellow; ovipositor with the cerci slender, curved gently downwards to the tips.

Female: Length about 13 mm.; wing 13 mm.

Frontal prolongation of head polished yellow, narrowly lined with brown on the sides; nasus long and slender; basal two segments of palpi brown, the outer ones black. Antennae with the scape and pedicel yellow, flagellum bicolored, the segments dark brown or brownish black at base, yellow apically, on the more proximal segments the amount of yellow slightly exceeding the black, the outer segments more uniformly darkened. Head above gray, vaguely patterned with a reddish line on either side of the posterior vertex and with a capillary dark brown median vitta; vertical tubercle more yellowed.

Pronotum gray, with three narrow brown markings. Mesonotum light gray, patterned with brown; praescutum with three darker brown stripes, the anterior ends of the lateral pair and the anterolateral parts of the median vitta conspicuously polished black, the latter areas larger; median praescutal stripe narrowed and darker at posterior end; scutum with a central darkening and two isolated brown areas on each lobe; mediotergite with vague indications of an incomplete capillary darkened area. Pleura and pleurotergite light gray; dorsopleural region pale yellow. Halteres with stem yellow, clearer at base, knob dark brown. Legs with the coxae grayish pruinose; trochanters yellow; femora obscure

yellow, the tips blackened, preceded by a clearer yellow ring of about the same width; tibiae brownish yellow, the tips narrowly brownish black; tarsi passing into black. Wings with the ground whitish subhyaline, patterned with darker and lighter brown, the former including much of the prearcular field and the vicinity of arculus and *h*, with three further dark areas in cell *Sc*, the one at outer end smallest; interspaces of cell *Sc* pale yellow; cell *C* medium brown, variegated with pale yellow beyond *h* and again at the outer end; stigma brown; paler brown washes over most of the remaining cells, more expanded and confluent near the wing tip, due to broad marginal seams to the veins; other slightly darker washes across the outer radial field and over the outer ends of cells *R* and *M*; still other pale washes in outer ends of the Anal cells; over most of the surface, the pale ground exceeds the dark color in area; veins chiefly brown. Venation: R_{1+2} atrophied; R_3 nearly three times R_{2+3} ; *Rs* more than twice *m-cu*, the latter oblique, placed on M_4 just beyond the origin; cell 2nd *A* relatively narrow.

Abdomen yellow, the outer segments somewhat darker, possibly caused by internal discoloration; caudal margins of segments very narrowly clearer yellow. Ovipositor with the cerci relatively slender, curved gently downward so that the concave edge is the ventral one, instead of the reverse, as common in the genus.

Habitat: Arizona (Pima County).

Holotype: ♀, Madera Canyon, Santa Rita Mountains, altitude 5,600 feet, August 14, 1949 (Floyd Werner and William Nutting).

I take great pleasure in naming this distinct fly for Mr. Floyd Werner, at this time a graduate student at Harvard University. This is the first member of the *glaphyoptera* group of the subgenus to be found in the United States. The very numerous Neotropical species of the subgenus *Eumicrotipula* Alexander have been discussed by the writer in another paper (Rev. de Entomologia, 17: 172-201; 1946). There are several species in South America having vein R_{1+2} atrophied, as in the present fly, including *Tipula* (*Eumicrotipula*) *chicana* Alexander, *T. (E.) consonata* Alexander, *T. (E.) efficax* Alexander, *T. (E.) flavidula* Alexander, *T. (E.) fraudulentula* Alexander, and others, all being quite distinct in the coloration of the body, legs and wings, and in the structure of the ovipositor. A conformation of the cerci such as occurs in the present fly is very uncommon in the entire family Tipulidae.

Wings fully developed (*damula*) or greatly reduced (*vestigipennis*) when present with *Sc* unusually short, Sc_1 ending far before the fork of *Rs*; tips of outer radial veins gently upturned, R_3

Genus **Dactylolabis** Osten Sacken.
Subgenus **Eudactylolabis** n. subgen.

more strongly so. Male hypopygium with two dististyles, the outer a long pale blade; inner style unequally bifid, the lower arm a powerful blackened club, its surface with abundant erect spinous setae, the upper or inner arm a pale lobe lying in the space between the two major styles. Ovipositor with the basal shield elongate, dark brown; cerci very large, forming a dorsal sheath for the hypovalvae, fused basally, the separate tips short and divergent; on lower outer margin of each cercus with a second broader acute tooth. In the elongated concave lower surface of the cerci lie the pale, densely hairy hypovalvae, their tips obtuse.

Type of subgenus: *Dactylolabis damula* (Osten Sacken). The new species herewith described as *Dactylolabis (Eudactylolabis) vestigipennis* likewise belongs here. The group seems to be characteristic of the semiarid regions of the southwestern United States and it seems probable that still further species will be discovered here. Osten Sacken (*Western Diptera*, Bull. U. S. Geol. Survey, 3: 202; 1877) has described the very peculiar ovipositor, stating that "it differs from that of any Tipulid I know of."

Dactylolabis (Eudactylolabis) vestigipennis n. sp.

General coloration light gray; wings and halteres very reduced; male hypopygium with the lower arm of the inner dististyle unusually stout, its surface with abundant short spinous setae.

Male: Length about 6 mm.; wing 0.85 mm.

The above measurements are those of the paratype specimen; the holotype is larger but is not sufficiently well preserved to add to these measurements.

Rostrum gray pruinose; palpi brownish black. Antennae with the scape and pedicel brown, sparsely pruinose; flagellum dark brown, the segments oval, becoming more elongate outwardly; verticils short, subspinous, placed at near midlength of the segments. Head clear light gray.

Thoracic dorsum chiefly light gray, the praescutum vaguely patterned with darker; pleura clearer gray. Halteres very small, shorter than the wings, entirely pale. Legs with the elongate coxae pale brown, sparsely pruinose; trochanters obscure yellow; remainder of legs light brown, the outer tarsal segments a little darker; tibial spurs distinct. Wings greatly reduced, as shown by the measurements, whitened, only the costal border a trifle darker, provided with dark setae. Venation entirely atrophied.

Abdominal tergites conspicuously patterned, dark gray, with a submedian pair of broken dark brown stripes, the median space clearer silvery gray, the dark stripes narrowly interrupted by the pale caudal borders of the segments; basal sternites more uniformly brown, the outer segments and hypopygium obscure brownish yellow. Male hypopygium with the tergal region thickened, provided with abundant setae that are directed chiefly caudad. Interbases with proximal ends stout, the long apical blades directed mesad. Outer dististyle a long narrow pale blade, setiferous on about the proximal third. Inner dististyle with the lower arm unusually stout, blackened, the tip obtuse, the entire outer surface with abundant short spinous setae that are erect or retrorse, those nearer base longer and more slender; upper or axillary arm a pale flattened blade, provided with scattered setae. Phallosome complex, the terminal element a slender acute spine.

Habitat: Arizona (Pima County).

Holotype: ♂, Tucson Mountains, altitude 4,500 feet, February 21, 1937 (Owen Bryant). *Paratopotype*: ♂, altitude 4,000 feet, March 4, 1937 (Owen Bryant).

I am indebted to Mr. Bryant for further data concerning these flies and their habitat. The type was found on the under side of a stick, the paratype beneath stones. With the latter it was indicated that two specimens were taken but one of these was apparently lost or mislaid. Bryant stresses the fact that the Tucson Mountains, lying to the west of Tucson, are entirely different from the Santa Catalinas, lying to the east. These mountains are lower and dryer and it is very difficult to find insect specimens thereon except under stones and the like. It is indicated that the range probably has an endemic fauna that appears only in February and March, following the February rains. Bryant further states that the insect fauna hides beneath stones and fragments of wood during the day and is active at night. It is to be hoped that more material of this unusually interesting fly may be found in the future.

Rhabdomastix (*Rhabdomastix*) *nuttingi* n. sp.

General coloration gray, the abdomen, including the hypopygium, dark brown; antennae of male approximately four times the length of the body; wings with a weak grayish tinge, the stigma pale brown; veins virtually glabrous; Sc_1 ending approximately opposite four-fifths the length of *Rs*.

Male: Length about 6 mm.; wing 6.3 mm.; antenna about 24 mm. Rostrum short, brown; palpi black. Antennae (male) very long,

about four times the body; scape dark brown, greatly enlarged, pedicel very small; flagellum yellow, the outer segments passing into brown, the segments progressively lengthened and more slender outwardly, beyond the first glabrous. Head above dark gray, with three orange yellow spots, a median one behind the antennal bases, the others adjoining the eyes at the narrowest point of the vertex; anterior vertex very broad.

Pronotum gray, the pretergites pale yellow. Mesonotum gray, the stripes not or scarcely differentiated; pseudosutural foveae and tuberculate pits black, the latter large. Pleura gray, the dorso-pleural membrane dusky. Halteres pale throughout. Legs with the coxae testaceous, the fore pair darker; trochanters elongate, yellow; remainder of legs generally light brown, the femoral bases more yellowed, the tips of femora and tibiae narrowly and vaguely darker; outer tarsal segments infuscated. Wings with a weak grayish tinge, the prearcular and costal fields a trifle more yellowed; stigma oval, pale brown; veins brown, more yellowed at wing base. Veins behind costa virtually glabrous, lacking on *R* and its branches, with the exception of a few unusually small trichia at outer ends of veins R_5 and M_{1+2} . Venation: *Sc* relatively long, Sc_1 ending about opposite four-fifths the length of R_s , Sc_2 not far from its tip, Sc_1 alone about one-half *r-m*; R_2 suboblique, a little shorter than the distance on costa between the tips of veins R_{1+2} and R_3 ; *m* long, transverse; outer section of vein M_{1+2} not conspicuously arched at origin, as in many allied species; vein 2nd *A* strongly sinuous, the cell broad.

Abdomen, including hypopygium, dark brown.

Habitat: Arizona (Santa Cruz County).

Holotype: ♂, Bear Valley, Tumacacori Mountains, at light, August 22, 1949 (Floyd Werner and William Nutting).

This interesting addition to the United States fauna is named for Mr. William Nutting, to whom I express my appreciation for various Western North American Tipulidae. This is the first record of any species of the typical subgenus *Rhabdomastix* Skuse from north of Mexico. The distribution of the relatively numerous species is chiefly antipodal, with a small number of species occurring north of the equator in both the New and the Old Worlds. The most northerly American species to this date were various ones in southern Mexico, including *Rhabdomastix* (*Rhabdomastix*) *isabella* Alexander, *R. (R.) longiterebrata* Alexander, and *R. (R.) mexicana* Alexander, all of which differ from the present species and among themselves in the details of venation and trichiation of the wings and in features of size and coloration.

THE MICROTRICHAIE OF ANOPHELES
ALBIMANUS WIEDEMANN.

By G. S. TULLOCH and J. E. SILAPIRO, Brooklyn, N. Y.

In 1944¹ Richards reported some incidental observations on the nature of the microtrichiae of *Anopheles quadrimaculatus* Say, which were based on material examined with the electron microscope. It was noted that these microtrichiae were tapering structures characterized by a ringed appearance due to circular thickenings around the shaft. The purpose of this communication is to record the presence of another type of microtrichia from *Anopheles albimanus* Wied.

The transparency of the wing of *A. albimanus* to 50 kilovolt electrons permits the direct examination of the microtrichiae although for the finer detail of the shaft more satisfactory results may be obtained by tearing the wing membrane and examining these microtrichiae which extend into the unimpeded electron beam. Two types of microtrichiae may be recognized: one is a tapering form similar to that noted in *A. quadrimaculatus* and the other is a bulbous form which is described here. A bulbed microtrichia (Fig. 1)

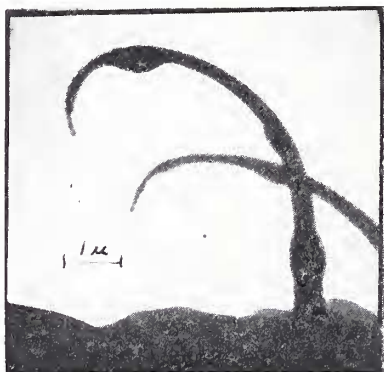


Fig. 1. Electron micrograph of microtrichiae of *A. albimanus*.

is about 9 microns long and except for the enlargements tapers from 0.56 microns at the base to 0.09 at the rounded tip. In side view the basal bulb is bilateral while the remaining two are unilateral. The distal two thirds of the greater curvature of the shaft is constricted at intervals of about 0.126 microns. These constrictions extend at

¹ Entomological News, Vol. LV, No. 10, pp. 260-262.